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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/693,951	10/28/2003	Rathindra DasGupta	87324.1602	3663

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EXAMINER

MORILLO, JANELL COMBS

ART UNIT	PAPER NUMBER
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1742

DATE MAILED: 08/27/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

AS

Office Action Summary	Application No. 10/693,951	Applicant(s) DASGUPTA, RATHINDRA	
	Examiner Janelle Combs-Morillo	Art Unit 1742	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 June 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 36-56 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 36-56 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 36-56 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The instant case is a continuation of 10/100,053, in which the examiner could not find (literal) support for “0.01 to 0.15 percent one or more other elements”, substantially as stated in claim 36 line 13. The parent case 10/100,053, as well as the instant specification mentions “others 0-0.15” (see Table on page 10, etc.), but does not appear to mention a lower limit of 0.01. Additionally, the presently claimed lower limits of Mn, Zn and Ti are not supported by the instant specification. Claims dependent on the above rejected claims are likewise rejected under this statute. Appropriate correction is required.

Claim Interpretation

3. Independent claim 36 line 13 mentions “one or more other elements”. The examiner has interpreted said phrase to mean any other element besides the ones listed (Si, Fe, Mn, Mg, Zn, Ti, Cu) can be present in the range 0.01 to 0.15% (as opposed to interpreting this to mean all

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other elements must be limited to 0.01 to 0.15% each). If this interpretation is not what applicant intended, please clarify.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 36-52, 54, and 56 are rejected under 35 U.S.C. 103(a) as being unpatentable over Loue et al (US 5,879,478) in view of Hayato et al (US 4,973,363).

Loue teaches thixoforming an aluminum alloy comprising: 5-7.2% Si, 1-5% Cu, <1% Mg, <3% Zn, <1.5% Fe, up to 0.2% Ti, up to 0.1% B, other elements <1% each and <3% total (abstract), by casting said alloy into billets with a globular solidification structure (column 1 lines 7-13), reheating to the semisolid state, and forming by forging or pressure injection (column 4 lines 45-51). Loue teaches that the initial casting into billets with a globular solidification structure commonly includes mechanical agitation in order to produce the necessary non-dendritic structure (column 1 lines 25-28), and after the billets are cast, the billets can be cut into the given size blank needed (column 1 lines 33-34). The examiner points out that Ti and B are grain refiners.

Loue does not teach the presently claimed range of Mn (indep. cl. 36) or Cr (dep. cl. 54). However, Hayato et al teaches it is known in the art of Al-Si hypoeutectic casting alloys to add Mn in ranges 0.25-1.0% total Mn+Fe in order to increase the recrystallization temperature and

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increase the mechanical characteristics by forming intermetallic compounds such as Al-Mn-Fe (column 4 lines 11-18). Additionally, Hayato teaches that Cr can be added $\leq 0.5\%$ in order to increase mechanical properties at high temperatures (column 4 lines 32-35). It would have been obvious to include Mn and Cr in the ranges taught by Hayato, for the Al-Si hypoeutectic alloy cast substantially as taught by Loue, because Hayato teaches that Mn increases mechanical characteristics, and Cr improves mechanical properties at high temperatures.

Because the combination of Loue and Hayato teaches that an overlapping alloy can be heated to the semi-solid state and pressure injected to produce a semi-solid product with a substantially overlapping alloy composition, it is held that Loue has created a prima facie case of obviousness of the presently claimed invention.

Overlapping ranges have been held to be a prima facie case of obviousness, see MPEP § 2144.05. It would have been obvious to one of ordinary skill in the art to select any portion of the range (instant claims 36-39, 51), including the claimed range, from the broader range disclosed in the prior art, because the prior art finds that said composition in the entire disclosed range has a suitable utility.

Concerning claims 40-42, 44-48, and 56, because Loue teaches substantially the same process performed on a substantially overlapping alloy composition, it is held that substantially the same results, including microstructural characteristics, are expected to occur. The examiner asserts that where the claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a prima facie case of either anticipation or obviousness has been established. *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). "When the PTO shows a sound basis for

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believing that the products of the applicant and the prior art are the same, the applicant has the burden of showing that they are not.” *In re Spada*, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990).

Concerning claim 43, which mentions the limitation “ascertaining the microstructure of the semi-solid metal before injecting the metal”, though Loue does not specify that the semi-solid metal is necessarily ascertained at this step, it is held to be within the disclosure of Loue to determine that a semi solid structure has successfully been achieved at this point. Therefore it is also held to be within the disclosure of Loue to “ascertain” said semi solid metal at this point.

Concerning claims 49, 50, and 52, as stated above, Loue teaches the presently claimed processing conditions.

Allowable Subject Matter

6. Claims 53 and 55 are allowable over the prior art of record, however said claims are rejected over 112 first paragraph as stated above. The prior art does not teach or suggest the presently claimed process of semi-solid forming the instant Al-Si-Cu-Fe-Mn-Mg-Zn-Ti alloy complete with Pb alone (cl. 53), or Pb combined with Cr (cl. 55).

Response to Arguments

7. In the response filed on June 18, 2004, applicant submitted a renumbered set of claims, and submitted various arguments traversing the rejections of record. The argument that “0.01 to 0.15 percent one or more other elements” is not new matter, and is supported by the original specification’s recital of 0-0.15% one or other elements, has not been found persuasive. The

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instant specification does not provide any other point or range (or example, etc.) of “one or other elements” besides 0-0.15%, and there simply is no reason to narrow said range to 0.01-0.15%. *In re Wertheim* does not apply to the instant case for this reason. The examiner submits there is no reason to carve 0.01-0.15 out of the broader originally disclosed range of 0-0.15. See *Purdue Pharma L.P. v. Faulding Inc.*, 230 F.3d 1320, 1328, 56 USPQ2d 1481, 1487 (Fed. Cir. 2000) (“[T]he specification does not clearly disclose to the skilled artisan that the inventors... considered the... ratio to be part of their invention.... There is therefore no force to Purdue’s argument that the written description requirement was satisfied because the disclosure revealed a broad invention from which the [later-filed] claims carved out a patentable portion”).

8. If applicant believes said range is of particular importance to the instant invention, the examiner suggests filing a CIP, thereby overcoming the new matter rejection.

9. Applicant’s argument that the present invention is allowable over the prior art of record because Loue does not teach the instant range of Mn has not been found persuasive. As stated in the new grounds of rejection above, it is known in the art to alloy Al-Si hypoeutectic casting alloys with Mn, and the motivation for providing said addition is to improve mechanical properties (due to the formation of Al-Mn-Fe intermetallics, Hayato at column 4 lines 11-18).

Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Janelle Combs-Morillo whose telephone number is (571) 272-1240. The examiner can normally be reached on 8:30 am- 6:00 pm.


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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.



GEORGE WYSZOMIERSKI
PRIMARY EXAMINER



jcm
August 24, 2004